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Graves, Scott Stoll  
Schultz, Joanne Elaine  
Lin, Yakankg  
Sanderson, James A.  
Reno, Jonh M.

<130> 690022.547

<160> 46

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<210> 1
<211> 638
<212> DNA
<213> Streptomyces avidinii
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cgacagcgcc	ccggccaccg	acggcagcgg	caccgccctc	ggttggaagg	tggcctggaa		360
gaataactac	cgcaacgccc	actccgcgac	cacgtggagc	ggccagtacg	tcggcgggcgc		420
cgaggcgagg	atcaacacc	agtggctgct	gacctccggc	accaccgagg	ccaacgcctg		480
gaagtccacg	ctggtcggcc	acgacacgtt	caccaagggtg	aagccgtccg	ccgcctccat		540
cgcgcggcg	aagaaggccg	gcgtcaacaa	cggcaaccgc	ctcgacgcg	ttcagcagta		600
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<210> 2
<211> 183
<212> PRT
<213> Streptomyces avidinii
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Ser	Ile	Thr	Ala	Ser	Ala	Ser	Ala	Asp	Pro	Ser	Lys	Asp	Ser	Lys	Ala
			20					25					30		
Gln	Val	Ser	Ala	Ala	Glu	Ala	Gly	Ile	Thr	Gly	Thr	Trp	Tyr	Asn	Gln
			35				40					45			
Leu	Gly	Ser	Thr	Phe	Ile	Val	Thr	Ala	Gly	Ala	Asp	Gly	Ala	Leu	Thr

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<212> DNA
<213> Streptomyces avidinii
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&lt;212&gt; PRT

&lt;213&gt; Streptomyces avidinii

&lt;400&gt; 4

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      20          25          30
Leu Ser Ala Ser Val Gly Asp Arg Val Thr Ile Thr Cys Arg Ala Ser
      35          40          45
Gln Gly Ile Arg Gly Asn Leu Asp Trp Tyr Gln Gln Lys Pro Gly Lys
 50          55          60
Gly Pro Lys Leu Leu Ile Tyr Ser Thr Ser Asn Leu Asn Ser Gly Val
65          70          75          80
Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Ser Asp Tyr Thr Leu Thr
      85          90          95
Ile Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gln
      100          105          110
Arg Asn Ala Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
      115          120          125
Lys Ile Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly
      130          135          140
Gly Ser Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
145          150          155          160
Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Phe Asn Ile
      165          170          175
Lys Asp Thr Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
      180          185          190
Gln Trp Met Gly Arg Ile Asp Pro Ala Asn Gly Asn Thr Lys Ser Asp
      195          200          205
Leu Ser Phe Gln Gly Arg Val Thr Ile Thr Ala Asp Thr Ser Ile Asn
      210          215          220
Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val
225          230          235          240
Tyr Tyr Cys Ser Arg Glu Val Leu Thr Gly Thr Trp Ser Leu Asp Tyr
      245          250          255
Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Ser Gly Ser Ala
      260          265          270
Asp Pro Ser Lys Asp Ser Lys Ala Gln Val Ser Ala Ala Glu Ala Gly
      275          280          285
Ile Thr Gly Thr Trp Tyr Asn Gln Leu Gly Ser Thr Phe Ile Val Thr
      290          295          300
Ala Gly Ala Asp Gly Ala Leu Thr Gly Thr Tyr Glu Ser Ala Val Gly
305          310          315          320
Asn Ala Glu Ser Arg Tyr Val Leu Thr Gly Arg Tyr Asp Ser Ala Pro
      325          330          335
Ala Thr Asp Gly Ser Gly Thr Ala Leu Gly Trp Thr Val Ala Trp Lys
      340          345          350
Asn Asn Tyr Arg Asn Ala His Ser Ala Thr Thr Trp Ser Gly Gln Tyr
      355          360          365
Val Gly Gly Ala Glu Ala Arg Ile Asn Thr Gln Trp Leu Leu Thr Ser
      370          375          380
Gly Thr Thr Glu Ala Asn Ala Trp Lys Ser Thr Leu Val Gly His Asp
385          390          395          400

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00550-025550

Thr Phe Thr Lys Val Lys Pro Ser Ala Ala Ser Ile Asp Ala Ala Lys  
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 420 425 430

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 <211> 1239  
 <212> DNA  
 <213> Streptomyces avidinii

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 tcctccccc aaccctggat ttatgccaca tccaacctgg cttctggagt ccctgctcgc 180  
 ttcagtggca gtgggtctgg gacctcttac tctctcacia tcagcagagt ggaggctgaa 240  
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 gacgcaggtt ccggctcgag ccaggttcag ctggtccagt caggggctga gctggtgaag 420  
 cctggggcct cagtgaagat gtcctgcaag gcttctgggt acacatttac cagttacaat 480  
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 ggaaatggtg atacttccta caatcagaag ttcaaaggca aggccacatt gactgcagac 600  
 aaatcctcca gcacagccta catgcagctc agcagcctga catctgagga ctctgcggtc 660  
 tattactgtg caagagcgca attacgacct aactactggt acttcgatgt ctggggcgca 720  
 gggaccacgg tcaccgtgag ctctgggtctt gggtcggcag acccctccaa ggactcgaag 780  
 gccaggtct cggccgcccga ggccggcctc accggcacct ggtacaacca gctcggctcg 840  
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 ggcaacgccg agagccgcta cgtcctgacc ggtcgttacg acagcgcccc ggccaccgac 960  
 ggcagcgcca cgccctcggg ttggacgggt ggctggaaga ataactaccg caacgcccac 1020  
 tccgcgacca cgtggagcgg ccagtagctc ggccggcgcc aggcgaggat caacaccag 1080  
 tggtgctga cctccggcac caccgagggc aacgcctgga agtccacgct ggtcggccac 1140  
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<210> 6  
 <211> 412  
 <212> PRT  
 <213> Streptomyces avidinii

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 20 25 30  
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 35 40 45  
 Ala Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser Gly Ser  
 50 55 60  
 Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Arg Val Glu Ala Glu  
 65 70 75 80  
 Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Trp Ile Ser Asn Pro Pro Thr  
 85 90 95  
 Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys Ile Ser Gly Leu Glu Gly  
 100 105 110  
 Ser Pro Glu Ala Gly Leu Ser Pro Asp Ala Gly Ser Gly Ser Ser Gln

115	120	125
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130	135	140
Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr Asn		
145	150	155
Met His Trp Val Lys Gln Thr Pro Gly Gln Gly Leu Glu Trp Ile Gly		
165	170	175
Ala Ile Tyr Pro Gly Asn Gly Asp Thr Ser Tyr Asn Gln Lys Phe Lys		
180	185	190
Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr Met		
195	200	205
Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys Ala		
210	215	220
Arg Ala Gln Leu Arg Pro Asn Tyr Trp Tyr Phe Asp Val Trp Gly Ala		
225	230	235
Gly Thr Thr Val Thr Val Ser Ser Gly Ser Gly Ser Ala Asp Pro Ser		
245	250	255
Lys Asp Ser Lys Ala Gln Val Ser Ala Ala Glu Ala Gly Ile Thr Gly		
260	265	270
Thr Trp Tyr Asn Gln Leu Gly Ser Thr Phe Ile Val Thr Ala Gly Ala		
275	280	285
Asp Gly Ala Leu Thr Gly Thr Tyr Glu Ser Ala Val Gly Asn Ala Glu		
290	295	300
Ser Arg Tyr Val Leu Thr Gly Arg Tyr Asp Ser Ala Pro Ala Thr Asp		
305	310	315
Gly Ser Gly Thr Ala Leu Gly Trp Thr Val Ala Trp Lys Asn Asn Tyr		
325	330	335
Arg Asn Ala His Ser Ala Thr Thr Trp Ser Gly Gln Tyr Val Gly Gly		
340	345	350
Ala Glu Ala Arg Ile Asn Thr Gln Trp Leu Leu Thr Ser Gly Thr Thr		
355	360	365
Glu Ala Asn Ala Trp Lys Ser Thr Leu Val Gly His Asp Thr Phe Thr		
370	375	380
Lys Val Lys Pro Ser Ala Ala Ser Ile Asp Ala Ala Lys Lys Ala Gly		
385	390	395
Val Asn Asn Gly Asn Pro Leu Asp Ala Val Gln Gln		
405	410	

&lt;210&gt; 7

&lt;211&gt; 1280

&lt;212&gt; DNA

&lt;213&gt; Streptomyces avidinii

&lt;400&gt; 7

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cagcctacat	gcagctcagc	agcctgacat	ctgaggactc	tgcggtctat	tactgtgcaa	300
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cgggtggtgg	tgggtcgggc	ggcggcggct	cgagcgacat	cgtgctgtcg	cagtctccag	480
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taagttacat	gcactggtac	cagcagaagc	caggatcctc	ccccaaaccc	tggatttatg	600



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 Leu Gly Ser Thr Phe Ile Val Thr Ala Gly Ala Asp Gly Ala Leu Thr  
 290                      295                      300  
 Gly Thr Tyr Glu Ser Ala Val Gly Asn Ala Glu Ser Arg Tyr Val Leu  
 305                      310                      315                      320  
 Thr Gly Arg Tyr Asp Ser Ala Pro Ala Thr Asp Gly Ser Gly Thr Ala  
 325                      330                      335  
 Leu Gly Trp Thr Val Ala Trp Lys Asn Asn Tyr Arg Asn Ala His Ser  
 340                      345                      350  
 Ala Thr Thr Trp Ser Gly Gln Tyr Val Gly Gly Ala Glu Ala Arg Ile  
 355                      360                      365  
 Asn Thr Gln Trp Leu Leu Thr Ser Gly Thr Thr Glu Ala Asn Ala Trp  
 370                      375                      380  
 Lys Ser Thr Leu Val Gly His Asp Thr Phe Thr Lys Val Lys Pro Ser  
 385                      390                      395                      400  
 Ala Ala Ser Ile Asp Ala Ala Lys Lys Ala Gly Val Asn Asn Gly Asn  
 405                      410                      415  
 Pro Leu Asp Ala Val Gln Gln  
 420

<210> 9  
 <211> 18  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> pKOD linker

<400> 9  
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 Gly Ser

<210> 10  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Linker used to create a scFvSA version of  
 anti-CD20mAb, B9E9 in the VLVH orientation

<400> 10  
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 1                      5                      10                      15

<210> 11  
 <211> 25  
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<220>  
 <223> Linker used to create a version of B9E9 scFvSA in

005050-0203000

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<400> 11
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  1             5             10             15
Gly Gly Gly Ser Gly Gly Gly Gly Ser
      20             25
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<220>  
<223> Oligonucleotide primer

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<210> 13
<211> 31
<212> DNA
<213> Artificial Sequence
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<220>  
<223> Oligonucleotide primer

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<211> 35
<212> DNA
<213> Artificial Sequence
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<220>  
<223> Oligonucleotide primer

<400> 14  
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<210> 15
<211> 34
<212> DNA
<213> Artificial Sequence
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<220>  
<223> Oligonucleotide primer

<400> 15  
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<211> 47
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<212> DNA  
<213> Artificial Sequence

<220>  
<223> Oligonucleotide primer

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<210> 17  
<211> 32  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Oligonucleotide primer

<400> 17  
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<210> 18  
<211> 52  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Oligonucleotide primer

<400> 18  
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<210> 19  
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<213> Artificial Sequence

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<210> 20  
<211> 58  
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<220>  
<223> Oligonucleotide primer

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<223> Oligonucleotide primer	
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<211> 35	
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<400> 25	
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<220>

<223> Linker sequence

<400> 30

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly  
 1 5 10 15  
 Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly  
 20 25 30  
 Gly Gly Ser  
 35

<210> 31

<211> 18

<212> PRT

<213> Artificial Sequence

<220>

<223> Linker sequence pKOD2

<400> 31

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 Asp Ser

<210> 32

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer

<400> 32

acgacggttg ctgcggcggt c

21

<210> 33

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer

<400> 33

aggctcatta atgatgcggg t

21

<210> 34

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer

005590-0486360

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<210> 35  
<211> 33  
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<220>  
<223> Oligonucleotide primer

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<211> 783  
<212> DNA  
<213> Streptomyces avidinii

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cctgaacagg gcttggaatg gattggaagg attgatcctg cgaatggtaa tagtaaata 180  
gtcccgaagt tccagggcaa ggccactata acagcagaca catcctcaa cacagcctac 240  
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aag 783

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<212> DNA  
<213> Streptomyces avidinii

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agtgggtctg ggaccgattt caccctcaac atccatccgg tgggaagaaga agatgctgca 720

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ccgggcaagg gtttaaagtg gatgggctgg attaacacca aaactgggtg agcaacctat 180  
gttgaagagt ttaagggctg ctttgccctt tctttggaga cctctgccac cactgcctat 240  
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aagatctctg gtggcgggtg ctcgggcggt ggtgggtcgg gtggcggcgg ctcggtgggt 420  
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tccacttcag taggtgatcg tgtcagcgtc acctgcaaag ccagtcagaa tgtgggtacg 540  
aatgttgctt ggtatcaaca gaaaccgggt caatccccga aagcactgat ttactcggca 600  
tcctaccgtt acagtgggtg ccgggatcgc ttcacgggca gtgggttctg gaccgatttc 660  
acgtcacca tcagcaatgt acagtctgaa gacttggcgg agtatttctg tcatcaatat 720  
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ccggaacagg gcctggaatg gattgggttg attgatccgg agaatgggtg tactgaatat 180  
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gggtcgggcg gcggcggctc gagcgaaaat gtgctcacc agtctccggc aatcatgtct 480  
gcatctccgg gtgagaaagt caccattacc tgcagtgcc gctcaagtgt aagttacatg 540  
cattggttcc agcagaaacc gggtaacttct ccgaaactct ggatttatag cactccaac 600  
ctggettctg gtgttcgggc tcgcttcagt ggcagtgggt ctgggacctc ttactctctc 660  
accatcagcc gtatggaagc tgaagatgct gccacttatt actgccagca acgtagtagt 720  
tatccgctca cgttcgggtc tggcaccaaa ctggaactga ag 762

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<212> DNA  
<213> Streptomyces avidinii

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&lt;211&gt; 768

&lt;212&gt; DNA

&lt;213&gt; Streptomyces avidinii

&lt;400&gt; 41

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&lt;211&gt; 765

&lt;212&gt; DNA

&lt;213&gt; Streptomyces avidinii

&lt;400&gt; 42

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&lt;211&gt; 741

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&lt;213&gt; Streptomyces avidinii

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